

## **Preface**

### **Why study the kettle ponds?**

Over the past century many ponds worldwide have been changed for the worse by human disturbance. Seemingly minor disturbances, like residential development along the shoreline, increased swimming, and atmospheric pollution from both distant industry and local automobiles, have turned clear ponds to algae or weed-choked ponds. Although most of the Cape ponds are in excellent shape, all show evidence of the influences of people; some are already showing decreased water clarity since the 1970s. Identifying the causes and monitoring the effects of these disturbances in a scientifically defensible manner requires intensive research and sustained monitoring. Monitoring records changes in those parameters most sensitive to human disturbance; research identifies the most important water quality problems, and tests and recommends effective solutions. [See Chapter IV. Pond Water Quality, Cultural eutrophication.]

### **The purpose and audience for this report.**

This report is intended for the general public as well as those with a scientific interest in the hydrology and ecology of Cape Cod's kettle ponds. Many local residents and visitors have observed and visited the ponds regularly over the years and have accumulated knowledge and concern for the state of the ponds. We herein report to you a summary of the systematic observations we have collected to date. Even as this report is printed we continue to measure water quality and sponsor studies to fill gaps in our knowledge.

As you will discover in this report, the kettle ponds of Cape Cod National Seashore are unique and fragile environments that provide windows into the environmental quality and the geologic history of Cape Cod. Scientists from the National Park Service and cooperating researchers have been monitoring pond water quality for more than 25 years and have only begun to understand the complicated dynamics that link them to the systems of groundwater, surface water and air quality that are unique to Cape Cod. This report puts the observations of scientists in your hands. Hopefully you won't need a science background to appreciate how far we have come in describing these systems. We have not tried to protect readers from grappling with the complete data; we are publishing all of the numbers in the interest of those critical readers who might use them and hope you will also find the explanations accessible.

To help guide your reading we have added a "Frequently Asked Questions" section and a Glossary. These sections are meant to introduce some complicated ideas and summarize some of the story told in the full report.